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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/687,628

10/20/2003

Tetsuya Iwasaki

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06/29/2004

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

THOMPSON, TIMOTHY J

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/687,628

Applicant(s)

IWASAKI, TETSUYA

Examiner

Timothy J Thompson

Art Unit

2873

*Handwritten signature*

-- Th MAILING DATE of this communication app ars on th cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### **Abstract**

The abstract of the disclosure is objected to because the abstract is two paragraphs, the abstract can only be one paragraph. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto(U.S. Pat. No. 6,195,212) in view of Yoshida(U.S. Pat. No. 5,392,100).

Regarding claim 1, Miyamoto discloses a plurality of lens groups(fig 2, 101, 102, 103): a cam cylinder having a cam to move at least a portion of said plurality of lens groups toward in a position corresponding to a predetermined photographing state and a collapsed state along an optical axis(fig 3A); a cam follower to move a portion of lens groups by engaging with said cam and rotating relatively to the cam cylinder along said cam(fig 3A-C); and a resilient body for biasing the cam follower along said optical axis to slide the cam follower on the cam(fig 8, 9), wherein a

Art Unit: 2873

developed shape of the cam has different angles to an imaged plane depending on a position in a collapsed region in which the cam follower is moved from a photographing state to a collapsed state(fig 13, No. 4). Miyamoto does not specifically disclose a biased force of said resilient body varying in response to a moved position of said cam follower. However, Yoshida discloses using a spring with a biased force of said resilient body varying in response to a moved position of said cam follower, where he states that using a spring with a high spring constant, allows for a smaller spring which helps to reduce the size of the camera(col 2, line 65 to col 3, line 20). It would have been obvious to one skilled in the art at the time of the invention to use a spring that will result in a biased force of said resilient body varying in response to a moved position of said cam follower as shown by Yoshida, in the imaging device of Miyamoto, since as shown by Yoshida a biasing spring is commonly used with a high spring constant resulting in a biased force of the resilient body varying in response to a moved position of said cam follower since this allows for reducing the size of the spring thus aiding in the reduction in the size of the camera and since the lens system of Miyamoto figures 11A-C shows the spring 9 being compressed, this results in a varying bias force.

Regarding claim 2, Miyamoto discloses cam includes a sliding surface for engaging with said cam follower and said sliding surface in the developed shape of the cam is formed from a configuration in which a plurality of surfaces having different angles to the imaged plane are connected successively(fig 13, No. 4).

Regarding claim 3, Miyamoto discloses cam includes a sliding surface for engaging with said cam follower and said sliding surface in the developed shape of the

Art Unit: 2873

cam is formed from a curved surface varying continuously at different angles to the imaged plane(fig 3A; fig 13, No. 4).

Regarding claim 4, Miyamoto discloses elastomer includes a Spring(fig 7, 9).

Regarding claim 5, Miyamoto discloses the elastomer(fig 7, 9) is disposed between at least two lens groups of the lens groups(fig 7, 102, 103).

Regarding claim 6, Miyamoto discloses have first and second group lens systems(fig 2, 102, 103), the cam includes first and second cam grooves each having sliding surfaces, the cam follower includes a first cam follower engaging with said first cam groove and a second cam follower engaging with said second cam move(fig 3 A-C), wherein said lens barrel has a fixing cylinder having first and second guide grooves in which the first and second cam followers are engaged and which extend straightly along an optical axis and holding rotatably the cam cylinder(fig 2, 2a), a first moving cylinder disposed in the fixing cylinder to move along the optical axis for holding said first cam follower(fig 2, 8) and first group lens system(fig 2, 103), and a second moving cylinder disposed in the fixing cylinder to move along the optical axis for holding said second cam follower(fig 2, 6) and second moving lens system, the elastomer is disposed between the first and second moving cylinders to bias them in opposite directions(fig 2, 9), and said first and second moving cylinders are moved along the optical axis by rotating relatively said cam cylinder relative to said fixing cylinder(cols 5 - col 7).

Regarding claim 7, Miyamoto discloses each of said sliding surfaces

Art Unit: 2873

has a configuration in which a plurality of surfaces having different angles to an imaged plane depending on a position in the collapsed region are connected successively(fig 4A and 13).

Regarding claim 8, Miyamoto discloses wherein each of said sliding surfaces is formed from a curved surface in which angles to an imaged plane are varied contineously depending on a position in the collapsed region(fig 4A and 13).

Regarding claim 10, Miyamoto discloses the plurality of lens groups includes a zoom lens(col 3, lines 30-40).

Regarding claim 11, Miyamoto discloses a lens barrel(fig 2, 1-3); said lens barrel including a plurality of lens groups(fig 2, 101-103); a cam cylinder having a cam to move at least a portion of the plurality of lens groups toward in a position corresponding to a predetermined photographing state and a collapsed state along an optical axis(fig 3 and fig 13); a cam follower to move said portion of lens groups by engaging with said cam and rotating relatively to the cam cylinder along the cam(col 4); and a resilient body for biasing said cam follower along said optical axis to slide the cam follower on said cam(fig 2, 9); wherein a developed shape of said cam has different angles to an imaged plane depending on a position in a collapsed region in which the cam follower is moved from a photographing state to a collapsed stateFig 13 No. 4). Miyamoto does not specifically disclose a biased force of said resilient body varying in response to a moved position of said cam follower. However, Yoshida discloses using a spring with a biased force of said resilient body varying in response to a moved position of said cam follower, where he states that using a spring with a high spring constant,

Art Unit: 2873

allows for a smaller spring which helps to reduce the size of the camera(col 2, line 65 to col 3, line 20). It would have been obvious to one skilled in the art at the time of the invention to use a spring that will result in a biased force of said resilient body varying in response to a moved position of said cam follower as shown by Yoshida, in the imaging device of Miyamoto, since as shown by Yoshida a biasing spring is commonly used with a high spring constant resulting in a biased force of the resilient body varying in response to a moved position of said cam follower since this allows for reducing the size of the spring thus aiding in the reduction in the size of the camera and since the lens system of Miyamoto figures 11A-C shows the spring 9 being compressed, this results in a varying bias force.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto (U.S. Pat. No. 6,195,212) as applied to claim 11 above, and further in view of Koizumi(U.S. Patent No. 5,696,878)

Regarding claim 12, Miyamoto does not disclose the camera is a digital camera. However, Koizumi discloses the camera is a digital camera. It would have been obvious to one skilled in the art at the time of the invention to use digital technology for capturing the image as shown by Koizumi, in the imaging device of Miyamoto, since as shown by Koizumi digital technology is commonly used for capturing images in a zoom lens camera which allows for the elimination of film for capturing images.

***Allowable Subject Matter***

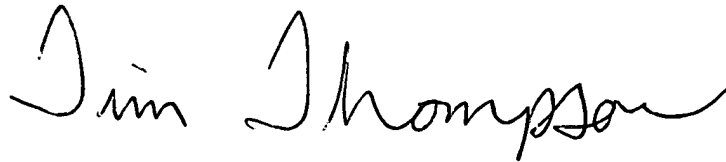
Art Unit: 2873

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With the allowable features being a torque is substantially constant at the time of collapsing to the collapsed region.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Thompson whose telephone number is (571) 272-2342. If the examiner can not be reached his supervisor, Georgia Epps, can be reached on (571) 272-2328.

T.J.T.  
6/25/04

A handwritten signature in black ink that reads "Tim Thompson". The signature is written in a cursive, flowing style with a large initial "T" and "T".